geometry moving past said fourth light transmission aperture, so as to measure the surface profile of said moving 3-D object surface and produce a series of linear 3-D surface profile maps thereof as said 3-D object surface moves past said PLIIM-based camera system,

wherein each said linear 3-D surface profile map comprises a set of 3-D coordinates specifying the location of sampled points along said moving 3-D object surface;

a linear imaging subsystem, disposed within said system housing, for producing a series of linear high-resolution 2-D images of said moving 3-D object surface as said 3-D object surface moves past said system,

wherein each said linear high-resolution ~~3-D~~ 2-D image comprises a set of pixel intensity values, and each said pixel intensity value being assigned a set of two-dimensional coordinates specifying the location of the pixel in said linear high-resolution 2-D image, and

wherein said linear imaging subsystem includes

a linear image formation and detection module having image formation optics with a field of view projectable through said third light transmission aperture and onto said 3-D object surface moving relative to said first, second and third light transmission apertures during object illumination and imaging operations, and

a pair of planar laser illumination arrays (PLIAs) disposed in said system housing, each said planar laser array (PLIA) including a plurality of laser diodes arranged together in a linear manner and said ~~planar laser illumination arrays~~ PLIAs being arranged in relation to said linear image formation and detection module, ~~and~~ for producing a pair of stationary planar laser illumination beams (PLIBs), and projecting said pair of stationary ~~planar laser illumination beams~~ PLIBs through said first and second light transmission apertures and oriented such that the plane of said ~~planar laser illumination beams~~ PLIBs is coplanar with the field of view of said linear image formation and detection module so that the object can be simultaneously illuminated by said ~~planar laser illumination beams~~ PLIBs and imaged within said field of view of said linear image formation and detection module; and

an image processing computer, for constructing high-resolution 3-D images of said 3-D object surface using said linear 3-D surface profile maps and said high-resolution 2-D linear images of said moving object surface.

Claim 670 (currently amended): The PLIIM-based camera system of claim ~~670~~ 669, wherein said image processing computer is disposed within said system housing.

Claim 671 (currently amended): The PLIIM-based camera system of claim ~~670~~ 669, wherein said image processing computer further comprises:

means for producing a 3-D surface geometry model of said moving 3-D object surface using said linear 3-D surface profile maps;

means for mathematically projecting pixel rays from each pixel in each said captured linear high-resolution 2-D image;

means for computing the x, y, z coordinates associated with the points of intersection between these pixel rays and said 3-D surface geometry model; and

means for generating a linear high-resolution 3-D image of said moving 3-D object surface based on said computed points of intersection,

whereby each pixel in said high-resolution linear 3-D image comprises an intensity value I(x, y, z) and a set of x,y,z coordinate values specifying the location of the sampled point of said moving 3-D object surface.

Claim 672 (currently amended): The PLIIM-based camera system of claim ~~672~~ 671, wherein said image processing computer further comprises means for assembling, in an image buffer, a set of consecutively computed linear high-resolution 3-D images so as to construct an area-type high-resolution 3-D image of said moving 3-D object surface.

Claim 673 (currently amended): The PLIIM-based camera system of claim ~~673~~ 672, wherein said image processing computer further comprises: means for mapping the intensity value I(x', y', z') of each pixel in said computed area-type high-resolution 3-D image onto the x',y',z' coordinates of points on a uniformly-spaced grid surface positioned along the optical axis of said linear imaging subsystem so as to model a 2-D planar substrate on which graphical forms of intelligence on said 3-D object surface might have been originally rendered; and means, using an intensity weighing function based on the x', y', z' coordinate values of each pixel in said area-

type high-resolution 3-D image, for producing an high-resolution area-type 2-D image of said 2-D planar substrate surface bearing said forms of graphical intelligence.

Claim 674 (currently amended): The PLIIM-based camera system of claim ~~675~~ 673, wherein said image processing computer further comprises: an OCR algorithm for performing automated recognition of graphical forms of intelligence that might be possibly contained in said high-resolution area-type 2-D image of said 2-D planar substrate surface so as to recognize said graphical forms of intelligence, and generating symbolic knowledge structures representative thereof.

Claim 675 (currently amended): The PLIIM-based camera system of claim ~~670~~ 669, wherein said linear imaging subsystem comprises a planar laser illumination and imaging (PLIIM) based linear imaging subsystem having a planar laser illumination array for producing a planar laser illumination beam that illuminates said moving 3-D object surface.

Claim 676 (currently amended): The PLIIM-based camera system of claim ~~671~~ 670, wherein said LADAR-based object profiling subsystem produces a pair of AM laser beams, spaced apart at an angular separation, for capturing pairs of linear 3-D surface profile maps which are processed in order to compute the instantaneous velocity of said moving 3-D object surface.